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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Francesc Ayats

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12/22/2009

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EXAMINER

MALEKZADEH, SEYED MASOUD

ART UNIT

PAPER NUMBER

1791

MAIL DATE

DELIVERY MODE

12/22/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/595,919	Applicant(s) AYATS ET AL.	
	Examiner Seyed M. Malekzadeh	Art Unit 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 September 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,5,7,11-13 and 16-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,5,7,11-13 and 16-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 09/28/2009 has been entered.

Response to Amendment

Claims **1, 3, 5, 7, 11- 13 and 16-20** are **pending**.

Claims **2, 4, 6, 8- 10 and 14-15** are **cancelled**.

Claims **1 and 5** are **amended**.

In view of the amendment, filed on 09/28/2009, following objections/rejections are **withdrawn** from the previous office action, mailed on 04/22/2008, for the reason of record.

- Objection of claims 1 and 5
- Rejection of claims 1, 3, 5, 7- 13, and 16- 20 under 35 U.S.C. 112, first paragraph
- Rejection of claims 1, 3, 5, 7- 13, and 16- 20 under 35 U.S.C. 112, second paragraph

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- Rejection of claims 1, 3, 5, 7- 12, and 16- 20 under 35 U.S.C. 103(a) as being unpatentable over Zimmermann et al. (US '492) in view of Famili et al. (US '278)

35 USC § 112, second paragraph

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims **1, 3, 5, 7, 11- 13, and 16- 20** are rejected under 35 U.S.C. **112, second paragraph**, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites “**optionally** further additives”, the phrase “**optionally**” renders the claim indefinite because the claim includes elements not actually disclosed (those encompassed by “or the like”), thereby rendering the scope of the claim is unascertainable. See MPEP § 2173.05(d)

Claim 1 recites the limitation of “**the** melting point of the plasticizer” in the seventh line of the claim. There is insufficient antecedent basis for this limitation in the claim because prior to the cited limitation, the claim fails to clearly define “a melting point” for the plasticizer. Clarification is requested.

Claim 1 recites the limitation of “**the** melting or plastification temperature of the thermoplastic polymer” in the seventh line of the claim. There is insufficient antecedent basis for this limitation in the claim because prior to the cited limitation, the claim fails clearly define “a melting or

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plastification temperature” for the thermoplastic polymer. Clarification is requested.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1, 3, 5, 7, 11- 13, and 16- 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bastioli et al. (US 5,462,980) in view of Zimmermann et al. (US 4,323,492).

Bastioli et al. (US ‘980) teach an extrusion process for making pellets in which a melting material with a polymeric composition is extruded, and then, is transformed into the pellets (see column 4, lines 58- 62) in which the melt

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composition comprises a synthetic thermoplastic polymer, a starchy material with a high amylopectin content (see abstract), additives which reduce the complexing capacity of the amylose and interact with the starch by hydrophilic interactions, and a plasticizer in which the total quantity of the plasticizer is preferably between 5 and 25% by weight in which the plasticizer comprises materials sorbitol, sorbitol ethoxylate, and sorbitol acetate which are solid at room temperature. (see column 3, lines 44- 66)

Further, Bastioli et al. (US '980) teach the starch and the synthetic polymer interact and are produced by mixing at a temperature above the melting points of the starch and polymer while the mixture also include a plasticizer such as water or high boiling plasticizers. (See column 1, lines 49- 54) also, the synthetic polymer by means of plasticizer and water are at a temperature of between 80°C and 180°C in which this effect is achieved during a first stage of the transportation of the components through an extruder in a period of time. (See column 4, lines 42- 57) Moreover, Bastioli et al. (US '980) teach the melt is produced under controlled pressure or vacuum at a temperature of from 130°C to 180°C with a water content such that bubbles are not created at atmospheric pressure at the output of the extruder. (See column 4, lines 53- 57) Also, Bastioli et al. (US '980) disclose a working condition in which the temperature of the melt in the extruder head is about 145°C. (See column 7, line 35)

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Thus, as to claim 1, Bastioli et al. (US '980) teach an extrusion process for making pellets of a thermoplastic extrude-able resin composition comprising a thermoplastic polymer, plasticizer, and other additives in which the plasticizer comprises a component which is solid at room temperature, and a carbohydrate such as sorbitol; wherein the temperature of material within the extruder is within 80°C and 180°C and the process is run at a temperature above the melting point of the plasticizer.

However, Bastioli et al. (US '980) **fail to teach** the process is run at a temperature below the melting or plastification temperature of the thermoplastic polymer, as claimed in claim 1. **Also**, Bastioli et al. (US '980) **is silent** that the temperature of the composition within the extruder does not exceed a temperature that is 10°C, 15°C, 30°C, or 45°C, below the melting or plastification temperature of the thermoplastic polymer at any time, as claimed in claims 5 and 18- 20; further, **fail to teach** the particle size of raw materials used is below 2000µm, as claimed in claim 7.

In the analogous art, Zimmermann et al. (US '492) teach a shaping process such as compression molding, extrusion, or injection molding for preparing a granular plasticizer-containing polyvinyl alcohol as pellets comprising a polyvinyl alcohol which is shown with (PVOH, PVA, or PVAL) as a thermoplastic polymer which is soluble or dispersible in the water, plasticizer which is solid in the room temperature, and water as an additive (See abstract and lines 19-24, column 4) in which all these materials in compound provide a

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raw material composition, **wherein** the process is run at **a temperature above** the **melting** point of the **plasticizer** and **below** the **melting** temperature of the polyvinyl alcohol as **the thermoplastic polymer**. (See lines 7-12, column 1; lines 65-68, column 2; and also lines 1-12, column 3)

Furthermore, Zimmermann et al. ('492) teach the maximum temperature does not exceed 140°C, and is perfectly in the range of from 100°C to 130°C. (See lines 7 - 12, column 3) Therefore, since the melting temperature of polyvinyl alcohol as the thermoplastic polymer in the composition is 230 °C, the prior art teaches the material during the mixing operation in the process **does not exceed a temperature** which is 45°C below the melting temperature of the thermoplastic polymer at any time.

Further, Zimmermann et al. ('492) teach the temperature control during the mixing operation is very important for the operation of the process. The temperature of the mixture must be adjusted in such a manner that the starting polymer particles swell and agglomerate temporarily.

Also, Zimmermann et al. ('492) teach the mixture of polyvinyl alcohol, plasticizer, and the water provide a component consisting of **particles** having a **diameter** not exceeding 300 micrometers (μm), therefore, the particle sizes of the used raw materials are below 2000 micrometers (μm).

Therefore, **it would have been obvious** for one of ordinary skill in the art at the time of applicant's invention to modify the extrusion process for making pellets as taught by Bastioli et al. (US '980) through **controlling** a temperature

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of the melting mixture within the extruder to be below the melting temperature of the thermoplastic polymer and also controlling the temperature to do not exceed at least 45°C below the melting temperature of the polymer **in order to** facilitate an easy and smooth swelling and agglomeration of the polymers during pellet forming process and further **providing** raw material with particle sizes in a range of below 2000µm **in order to** ensure obtaining a uniform and homogeneous distribution of the particles within the mixture, as suggested by Zimmermann et al. ('492).

Moreover, Bastioli et al. (US '980) teach the amount of the plasticizer in the composition is preferably between 5 and 25%. (See column 3, lines 46- 48) Therefore, Bastioli et al. (US '980) suggest the amount of the plasticizer in the composition is at least 5%, 10%, or 15%, as to requirement of the **claims 3 and 16- 17.**

Bastioli et al. (US '980) further teach the synthetic thermoplastic polymeric component is constituted by polymers and copolymers derived from ethylenically unsaturated monomers having repeating units with at least one polar functional group such as a hydroxy, alkoxy, carboxy, carboxyalkyl, alkylcarboxyl or acetal group. (See column 3, lines 13- 23) All these indicated synthetic materials are water soluble or water dispersible. Therefore, **as to claim 11**, Bastioli et al. (US '980) teaches the thermoplastic polymer is water-soluble or water dispersible.

As **to claim 12**, Bastioli et al. (US '980) teach the thermoplastic polymer comprises a derivative of the PVOH. (See column 8, lines 10-12 and lines 29-31) Also, **as to claim 13**, Bastioli et al. (US '980) teach the thermoplastic polymer comprises polyethylene glycol and polypropylene glycol. (See column 3, lines 49- 61)

Response to Arguments

Applicant's **arguments** with respect to **claims 1, 3, 5, 7, 11- 13, and 16- 20** have been considered but **are moot** in view of the new ground(s) of rejection.

Applicant's arguments, filed on 09/28/2009, in respect to the newly added limitations and previous grounds of the rejections, have been fully considered. A new primary reference of Bastioli et al. (US '980) has been applied for the rejection of the claimed subject matter which was not previously discussed in the office action, mailed on 01/28/2009. The previously cited reference of Zimmermann et al. ('492) is now applied in the above rejection as a secondary reference to teach the claimed subject matter.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Seyed Masoud Malekzadeh whose telephone number is 571-272-6215. The examiner can normally be reached on Monday – Friday at 8:30 am – 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin, can be reached on (571) 272-1189. The fax number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published application may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance form a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Seyed M. Malekzadeh/

Examiner, Art Unit 1791

/Eric Hug/

Primary Examiner, Art Unit 1791